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EXAMINER	
KARACSONY, ROBERT	
ART UNIT	PAPER NUMBER
2821	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,768	GLOCKER ET AL.	
	Examiner	Art Unit	
	ROBERT KARACSONY	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35-67,69,70,72 and 74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-67,69,70,72 and 74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following Office Action is in response to the Amendments received *August* 28, 2009. Claims 35-67, 69, 70, 72 and 74 are currently pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 35-47, 49, 50, 52-67 and 69-74 rejected under 35 U.S.C. 103(a) as being unpatentable over *Ito* (US 2002/0061734, hereinafter *Ito*) in view of *Kim et al. (*US 7,065,379, hereinafter *Kim*).

Claim 35: *Ito* (figs. 1, 2 and 4-6) teaches a wireless communication device, comprising:

at least one circuit board (paragraph [0032]);

at least one antenna (5) coupled to the at least one circuit board for at least one of emitting and receiving electromagnetic radio energy fields; and

at least one first current-conducting corrective element (3) coupled to the al least one circuit board, wherein the at least one first current-conducting corrective element comprises at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element relative to a total current level capacity directly from the circuit board, and wherein the first current-conducting corrective element is embodied such that at least one of an amplitude level and a phase angle of electrical currents on the at least one

antenna, the at least one circuit board, and the at least one first current-conducting corrective element, is adjusted in relation to each other to distribute the electrical currents in a substantially even manner, and to reduce electromagnetic exposure which results from the electrical currents (Abstract).

Although *Ito* teaches the circuit board is a shield case, which serves as a ground for the circuit board. It is well know to the skilled artisan at the time of the invention that the device would function similar if the shield case were actually a circuit board. *Kim* teaches the similar invention which connects the conducting element to the circuit board (Abstract, fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the circuit bard ground as the shield case, with a reasonable expectation of success, since the shield case and the ground of a circuit board function the same.

Claim 36: *Ito* teaches an additional tuning part (8a,8b) for tuning at least one of the phase angle and the amplitude level of the electrical current on at least one of the first corrective element and the circuit board, wherein an overlaid total current flow resulting from the electrical currents on the circuit board, the first corrective element and the antenna has an overall effect of producing a substantially homogeneous SAR distribution in one of a specifiable surface area viewed from a side of the circuit board facing the user and in a specifiable volume area around a coupling structure of the circuit board and the antenna coupled thereto (Abstract).

Claim 37: *Ito* teaches a second current-conducting (Examiner interprets '11b' as the second corrective element and '11a' as the first corrective element) correcting element for additionally tuning the current flow on at least one of the first corrective element and the circuit board such that a changed electrical current flow on at least one of the first corrective element

and the second corrective element is caused which runs substantially out-of-phase to the current flow on the circuit board, wherein, as a result of the overlaid total current flow on the circuit board, at least one of the first corrective element and the second corrective element and the antenna taken together, a substantially homogeneous SAR distribution over one of an overall area of a side of the circuit board facing the user and in a specifiable volume area around a coupling structure of the circuit board and the antenna coupled thereto results (Abstract).

Claim 38: *Ito* teaches the first corrective element is electrically connected to ground of the circuit board (paragraph [0032]).

Claim 39: *Ito* teaches the first corrective element is at least one of coupled capacitively and coupled inductively to the circuit board (fig. 1).

Claim 40: *Ito* teaches the second corrective element is electrically connected to at least one of the first corrective element and the circuit board (fig. 5).

Claim 41: *Ito* teaches the second corrective element is at least one of capactively coupled and inductively coupled to at least one of the first corrective element and the circuit board (fig. 5).

Claim 42: *Ito* teaches the second corrective element is an integral component of at least one of the first corrective element and the circuit board (fig. 5).

Claim 43: *Ito* teaches the second corrective element is provided separately from at least one of the first corrective element and the circuit board (fig. 5).

Claim 44: *Ito* teaches the first corrective element is embodied as a loop which at least partly extends along side edges of the circuit board (fig. 4).

Claim 45: *Ito* teaches the loop for the first corrective element is substantially embodied as a rectangle (fig. 4).

Claim 46: *Ito* teaches the second corrective element is embodied as one of a serpentine loop structure and in a form of at least one flat element (fig. 5).

Claim 47: *Ito* teaches at least one of the first corrective element and the second corrective element is arranged at a specifiable height from the circuit board (fig. 5).

Claim 49: *Ito* teaches the first and second corrective elements are substantially positioned in a same layer plane (fig. 5).

Claim 50: *Ito* teaches the second corrective element is arranged in a layer plane which is different to a layer plane of the first corrective element (fig. 5).

Claim 52: *Ito* teaches the second corrective element runs substantially orthogonally to a longitudinal extent of the first corrective element (fig. 6).

Claim 53: *Ito* teaches the second corrective element is positioned and dimensioned in such a way relative to at least one of the circuit board, the antenna and the first corrective element that a minimum resulting SAR distribution is produced at around a resonance frequency in radio operation of the antenna (Abstract).

Claim 54: *Ito* teaches the second corrective element is dimensioned such that a component placement surface of the circuit board enclosed by it corresponds at most to 0.2 to 0.5 times a part of the circuit board surface enclosed by the first corrective element (fig. 5).

Claim 55: *Ito* teaches a third additional, current-conducting corrective element (24a, fig. 6) on the circuit board coupled and embodied as a tuning part such that for the electrical current

generated on the circuit board, an explicit current path extension is effected while simultaneously substantially retaining original specified length and width dimensions of the circuit board.

Claim 56: *Ito* teaches the third corrective element is arranged in an area of an end face of the circuit board which lies opposite an end face of the circuit board having a connection area of the antenna (fig. 6).

Claim 57: *Ito* teaches the third corrective element is embodied in a serpentine shape (fig. 6).

Claim 58: *Ito* teaches one or more of the corrective elements is assigned to a component placement surface of the circuit board which, when the wireless communication device is worn on the body of the user or when the wireless communication device is brought up to the head area of the user for speaking or listening is facing the respective body or head area (fig. 3).

Claim 59: *Ito* teaches one or more of the corrective elements is arranged on a component side of the circuit board opposite the antenna (fig. 6).

Claim 60: *Ito* teaches one or more of the corrective elements is positioned such that its imaginary orthogonal projection in relation to a component placement surface of the circuit board substantially lies with a delimitation area spanned by side edges of the circuit board (fig. 6).

Claim 61: *Ito* teaches one or more of the corrective elements is assigned as at least one further layer in a spatial area which is at least one of within, above, below and to a side of the delimitation area spanned by the side edges of the circuit board (fig. 6).

Claim 62: *Ito* teaches one or more of the corrective elements is an electrically conductive material (Abstract).

Claim 63: *Ito* teaches one or more of the corrective elements is formed by at least one of: at least one wire- type component; at least a single layer electrically conductive foil; and at least a single layer covering (fig. 6).

Claim 64: *Ito* teaches at least one of the corrective elements is formed by at least one coating layer in at least one of a lower shell and a upper shell of a housing of the wireless communication device (paragraph [0032]).

Claim 65: *Ito* teaches at least one of the corrective elements is manufactured in punch/bend technology and is arranged at a specifiable height above a component placement surface of the circuit board (fig. 6).

Claim 66: *Ito* teaches the circuit board is substantially embodied in a rectangular shape (fig. 6).

Claim 67: *Ito* teaches the antenna is embodied as one of a lamda/4 antenna and a PIFA antenna which together with the circuit board form a radiating dipole (paragraphs [0035] and [0039]).

Claims 69 and 74 are similar in scope as claim 35 and are therefore rejected for substantially the same reasons.

Claims 70 and 72: *Ito* teaches a maximum Specific Absorption Rate (SAR) distribution is reduced which results overall as a result of the electrical currents (Abstract).

Claim 71 and 73: *Ito* teaches the device produces sound (It's a phone therefore must inherently produce sound from the speaker).

4. Claims 48 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ito* in view of *Kim*.

Claim 48: *Ito* teaches all of the limitations of claim 47, as discussed above. *Ito* fails to teach the height is between 0.1 and 0.6 cm away from a component placement surface of the circuit board. However, *Ito* teaches "the interval between the conductive plate 3 and the front surface 2a of the shield case 2 depends on a radio communication frequency, and the portable communication radio communication device 1 can adjust the interval in accordance with the frequency bandwidth." (paragraph [0037]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have adjusted the interval between 0.1 and 0.6 cm, as taught by *Ito*, in order to have adjusted the frequency bandwidth.

Claim 51: *Ito* teaches all of the limitations of claim 37, as discussed above. *Ito* fails to teach the second corrective element is formed by an Electrostatic Discharge (ESD) protective element, the ESD protective element being a metallic display window. However, it is well known in the art to provide the display of a mobile device, such as a phone, on the side of the device that comes in contact with the ear, therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the conductive plate 3 shown in fig. 4 as the metallic display window, since it would simplify the construction of the device by using conductive plate 3 for SAR reduction and ESD protection.

Response to Arguments

5. Applicant's arguments filed August 28, 2009 have been fully considered but they are not persuasive.

6. Regarding the arguments on page 11, line 22 through page 12, line 16 of the Remarks, "*Ito*, which is directed to a device which makes it difficult for current to flow in the communication device, does not disclose or render obvious at least one first current-conducting

corrective element comprises at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element relative to a total current level capacity directly from the circuit board," the Examiner respectfully disagrees with Applicants. As stated above in Applicants argument, the conductive plate 3 of *Ito* makes it difficult for current to flow. Therefore, current is still present on conductive plate 3. Since that current is from the device itself, the Examiner interprets conductive plate 3 as "at least one first current-conducting corrective element comprises at least one current conducting track for increasing a current level capacity in the at least one first current-conducting corrective element relative to a total current level capacity directly from the circuit board," as recited in the claims.

7. Regarding the arguments on page 12, line 17 through page 13, line 5 of the Remarks, that "neither *Ito* or *Kim* alone, nor the combination of *Ito* and *Kim*, discloses or renders obvious a wireless communication device including at least one current-conducting corrective element embodied such that at least one of an amplitude level and a phase angle of electrical currents on the at least one antenna, the at least one circuit board, and the at least one first current-conducting corrective element is adjusted in relation to each other to distribute the electrical currents in a substantially even manner, and to reduce electromagnetic exposure which results from the electrical currents," the Examiner respectfully disagree with Applicants. Although *Ito* is silent as to the specific amplitude and phase angle of the current in the entire device, the Examiner notes that since current is a modeled by its amplitude and phase angle and the current on the conductive plate 3 is current generated by the device, i.e, pcb, antenna, feed, etc..., it is inherent that the current conducting corrective element is "embodied such that at least one of an amplitude level and a phase angle of electrical currents on the at least one antenna, the at least

one circuit board, and the at least one first current-conducting corrective element is adjusted in relation to each other to distribute the electrical currents in a substantially even manner, and to reduce electromagnetic exposure which results from the electrical currents," as recited in the claims.

8. Regarding the arguments that "*Ito* in view of *Kim* do not disclose or render obvious at least one current-conductive corrective element that compensates current to reduce overall current away from the at least one circuit board by increasing current on the at least one current-conductive corrective element in a direction opposite of current flowing on the at least one circuit board," see page 14, lines 3-10 of the Remarks, the Examiner respectfully disagrees with Applicant. Although *Ito* does not explicitly recite the direction the current is flowing, the location of the shorting conductor 7 and the fact that "the impedance between the shield case 2 and the conductive plate 3 becomes approximately infinite at the electrically opened end, while becoming close to zero at the short circuit forming end," (see paragraph [0038] of *Ito*) will cause the current on the current-conductive element to flow opposite to the current on the circuit board. Secondly, the Examiner notes that the current on the circuit board of the portable radio does not flow in one direction only, but flows in every direction, since the conductive traces on circuit boards are made up of numerous turns that are provided to optimize the space layout of the circuit board. Therefore, the Examiner interprets the current on the current-conductive element to flow opposite to the current on the circuit board.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT KARACSONY whose telephone number is (571)270-1268. The examiner can normally be reached on M-F 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. K./
Examiner, Art Unit 2821

/Hoang V Nguyen/
Primary Examiner, Art Unit 2821